

REMARKS

Claims 2-52, 106, 107, 182, 183, 194, 195 and 246-251 will be pending in this application upon entry of the instant Amendment. Claims 106, 107, 246, 247, 250 and 251 are withdrawn.

Claim 1 has been canceled herein without prejudice. Claims 2, 3, 4, 9, 14, 15, 16, 28, 37 and 250 have been amended to depend from Claim 52. Claim 28 has further been amended to recite "the" pore structure as opposed to "said" pore structure. Claim 31 has been amended to recite the surfactant is polyoxyethylene-polyoxypropylene block copolymer. Finally, Claim 36 has been amended to correct a typographical error. No new matter has been added by these amendments. Support for these amendments can be found throughout the specification as originally filed.

Applicant respectfully reserves the right to pursue the claims as originally filed or similar claims as well as any non-elected, canceled or otherwise unclaimed subject matter in one or more continuation, continuation-in-part, or divisional applications.

Applicants respectfully acknowledge the Examiner's determination that Claims 39, 41, 42, 43 and 50 would be allowable if rewritten in independent form. Nevertheless, reconsideration and withdrawal of the objections to this application in view of the amendments and remarks herewith, are respectfully requested, as the application is in condition for allowance.

Objection to the Specification

The Specification has been objected to for improperly noting the trade name PLURONIC® F38. Applicants have amended the specification to amend each instance of the term PLURONIC® F38 which was not previously indicated in capital letters or with the registry symbol. Withdrawal of the objection the specification is respectfully requested.

Objection to the Claims

Claim 36 has been objected to for a minor typographical error. Applicants have amended the claim as described by the Examiner. Withdrawal of the objection the claim is respectfully requested.

Rejections under 35 U.S.C. §112, second paragraph (a)

Claim 28 has been rejected under 35 U.S.C. §112 as allegedly lacking antecedent basis for the “pore structure” limitation. Applicants respectfully disagree. Indeed, as the materials of the claims are porous, they inherently have a pore structure. Nevertheless, and without conceding the basis for the rejection, Claim 28 has been amended to recite “the” pore structure as opposed to “said” pore structure. No new matter has been added by this amendment.

Claim 31 has been rejected under 35 U.S.C. §112 as allegedly indefinite for referencing PLURONIC® F38. To that end, Applicants have amended Claim 31 to recite that the surfactant is polyoxyethylene-polyoxypropylene block copolymer. Support for this amendment can be found at Page 21, lines 4-7. No new matter has been added by this amendment.

Accordingly, Applicants respectfully request reconsideration and withdrawal of all rejections under 35 U.S.C. § 112, second paragraph.

Rejections under 35 U.S.C. §103 (a)

Claims 1-27, 52 and 248 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 5,650,474 to Yamaya et al (“Yamaya”). This rejection is traversed.

As amended, the claims are directed to a hybrid inorganic/organic monolith comprising a polymerized scaffolding nanocomposite (PSN), wherein the nanocomposite contains a scaffolding functionality capable of chemically interacting with a surface of a second material. The monoliths of the invention allow for in-column preparation of porous monoliths.

As described in the present specification (e.g., in the Background of the Invention), monolithic materials are complex materials to make, and are prepared from a very different process than porous particles. Monoliths prepared prior this invention also had a real problem due to shrinkage and poor wall adhesion. These problems often required monoliths to be prepared in a primary vessel, shaved or shaped in some way, and then built into the column body. Specifically, one had to build the column body around the material (i.e., cladding).

Applicants note that Yamaya (US 5,650,474) does not disclose porous monolithic materials. Additionally, nowhere in Yamaya is it described how one of ordinary skill in the art would make a monolithic material from the materials of Yamaya. As such, one of ordinary skill in the art would have had no motivation to make a monolithic material from the materials of Yamaya and no reasonable expectation of success in making such a monolith.

Additionally, Applicants note that Yamaya does not teach nor suggest that its materials comprise polymerized scaffolding nanocomposites (PSNs). As defined in the present specification, a PSN is a hybrid composite material that comprises a polymerized organic nanophase surrounded by an inorganic nanophase. However, the materials described by Yamaya are particulate materials having an average compositional formula. One of ordinary skill in the art would not read this average compositional formula as describing the PSNs of the instant claims. Similarly, based on the method described for making the compositions of Yamaya, one of ordinary skill would not have had any reasonable expectation of success in making or using the PSN containing monolith of the instant claims based on the disclosure of Yamaya.

As such, Applicants contend that one of ordinary skill in the art would not find the instant claims obvious in light of Yamaya.

Claims 1, 28-36 and 249 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 5,895,794 to Berg et al ("Berg"). This rejection is moot.

As described above, and without conceding the validity of the rejection. Claim 1 has been canceled without prejudice. Applicants note that Claim 52 was not rejected over Berg. As

each of the Claims 28-36 and 249 depend from Claim 52, Applicants believe the rejection is now moot.

Claims 38, 40, 44-49 and 51 are rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Yamaya as applied above in view of U.S. Patent Application Publication No. 2002/007168 to Jiang et al. ("Jiang"). This rejection is traversed.

Applicants contend that Jiang, directed to porous inorganic/organic hybrid materials, does not rectify any deficiencies with regard to Yamaya. As such, Applicants respectfully assert that the referenced claims are not rendered obvious by the combination of Yamaya with Jiang.

Claims 182, 183, 194, and 195 are rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent Application Publication No. 2003/021730 as the English Equivalent to PCT/EP01/00604 to Mueller et al. ("Mueller"). This rejection is traversed.

The Examiner contends that Mueller is directed to a polymerized-in frit in which, prior to the polymerization, the inner wall of the column is functionalized with a reactive group to which methacryloxypropyltrimethoxysilane can be added to provide added functional groups. The Examiner contends that the polymerization of polyacrylate materials inside a silica column that has been functionalized reads on the instantly claimed polymerized scaffolding networks.

Applicants respectfully disagree. Indeed, as described above, the PSNs of the invention are described as a hybrid composite material that comprises a polymerized organic nanophase surrounded by an inorganic nanophase. Nothing in Mueller describes the use of the instantly claimed PSN material. At best, Mueller describes the use of a standard silica monolithic material which is formed by standard sol-gel techniques in a modified capillary. One of ordinary skill in the art would not read the frit of Mueller as comprising a hybrid inorganic/organic monolith comprising a polymerized scaffolding nanocomposite (PSN). Furthermore, one of ordinary skill in the art would have no motivation to create such a monolith

as Mueller is only concerned with the modification of a capillary to react with a standard monolith.

As such, Applicants contend that one of ordinary skill in the art would not find the instant claims obvious in light of Mueller.

CONCLUSION

In view of the foregoing, reconsideration and withdrawal of all rejections, allowance of the instant application with all pending claims, and passage of the instant application to issuance are earnestly solicited. If a telephone conversation with Applicants' representatives would help expedite the prosecution of the above-identified application, the Examiner is urged to call Applicants' representatives at the telephone number below.

In view of the amendments and remarks made herein, the application is believed to be in condition for allowance. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are respectfully requested. Please charge any required fee or credit any overpayment to Deposit Account No. 04-1105, under Order no. 60005 (49991).

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Respectfully submitted,

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